SEON
Mobile Surveillance

Scout™ Basic Mobile VCR System

Installation and User's Guide

Document part number 700-0016 R007

Seon Design® Inc.

Seon Design Inc. is a specialist in the design and manufacture of video surveillance systems for mobile applications. Seon has been the preferred solutions provider for the pupil transportation industry since 1999. Today, we are proud that our success in this area has made us the leading manufacturer of mobile video surveillance systems in North America.

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Who this Guide is For

This Installation and User's Guide provides installation and operating information for the Scout™ Basic Mobile VCR System (Scout Basic). The Guide is intended for anyone who needs to install and operate the Scout™ Basic Mobile VCR System.

Conventions Used

CAUTION
Cautions identify conditions or practices that could result in damage to the unit or other equipment.

Important: These notes describe things which are important for you to know, but are not as serious as a Caution.

Related Documentation

SA Series Wedge Camera Setup Guide, document part number 700-0004

Accessories

A remote control is available for use with the Scout Basic VCR.

Finding Information Online

You can find more information about Seon Design Inc. as well as its products and services at **www.seon.com**.

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CHAPTER 1

Introduction

This chapter describes the product features and components of the Scout™ Basic Mobile VCR System (Scout Basic System).

1.1. Scout Basic System

The Scout Basic System consists of the following components:

- Scout Basic VCR
- Lock box
- Camera
- Video tape
- Cables and harnesses for power and ignition input

1.2. Scout Basic Product Features

The Scout Basic System has been designed using extremely reliable and easy-to-use technology, including:

- Hi-Fi audio for increased quality and vibration resistance
- Eight hours of recording with T-160 tape
- On-screen display of operational status (time, date, vehicle identification, and system voltage)
- Smart-Start™ to prevent potential damage to the VCR from voltage spikes and drops during vehicle start-up
- Smart-Temp™ and built-in heater to prevent tape damage at low temperatures
- Configurable software
  - Repeat recording, user selectable ON or OFF
  - Variable delay-on and delay-off recording, selectable up to 60 minutes
  - Five daily timers to set the VCR recording time
- Temporary power for tape removal without turning on the vehicle ignition
- Front panel video output and audio output jacks for setup and playback

1.2.1. Front Panel Features

The Scout Basic VCR has important features on the front panel such as the POWER, EJECT and REC buttons, REW, PLAY, FF and STOP buttons, VIDEO OUTPUT and AUDIO OUTPUT jacks.

For more information, see “Using the Front Panel” on page 4–2.

1.2.2. Back Panel Features

The input connectors are located on the back panel where the cables and harnesses connect to the VCR. For more information, see Figure 2-4 on page 2–5.

1.3. Lock Box

The lock box secures the VCR into a location on the bus and provides the following features:

- A locking door which prevents unauthorized access to the VCR controls. Authorized personnel can use the lock box key to remove the hinged locking door when access to the VCR is necessary.
- A sliding rail system that allows for easy VCR installation and exchange.
- A slotted cable entry that allows connectors to be inserted into the lock box after installation.
- Mounting orientation accommodates a horizontal installation—flat on the floor or under a seat. (For installing the VCR under a seat, use of the Underseat Mounting Bracket Kit is recommended. Contact your Seon Design sales representative for more information.)

1.4. Cables and Harnesses

The wiring connections to the Scout Basic System includes:

- A 20 foot camera cable which comes with the camera, using a single connector for ease of installation.
- A high-reliability power input harness for easy wiring of power and ignition trigger.
- In-line fuses on the power and ignition lines for added protection.

CHAPTER 2

Installation

This chapter provides information and procedures for installing the Scout Basic System.

2.1. Installing the Scout Basic VCR and Lock Box

The Scout Basic VCR is designed to be installed in the lock box which is secured to the mounting surface using the screws provided. The lock box can be installed flat on the floor or under a seat (horizontal installation), depending on your requirements. The lock box has a removable, hinged locking door, and a sliding rail system to allow for easy installation and exchange of the VCR.

The Scout Basic VCR has connections to the front and back of the unit which are secured once the VCR is installed and the lock box is locked. Cable grommets on the lock box allows connectors to be inserted into the lock box after installation.

Planning an installation

Check that you have all the system components and inspect the units for any scratches or damage. The lock box key is required to unlock the door of the lock box and remove the components that are placed inside the box for shipping such as the camera and the harnesses. Assemble the necessary tools for installation.

Materials required

You will need these materials to complete the Scout Basic VCR installation:

- Scout Basic VCR
- Lock box and Lock box keys for securing the hinged locking door
- Camera
- Power and ignition harness (20 foot)
  - Fuses: 3 A power fuse and 1 A ignition fuse
  - Fuse holders
- Butt splice connectors
- Four #10 × ¾" sheet metal screws
- Four #10 × 1" self-drilling screws

Longer cables

To customize your installation, longer cables are available by contacting your Seon Design sales representative.

Important: If you are mounting the lock box under a seat, please contact your Seon Design sales representative or dealer for information on the Underseat Mounting Bracket Kit before starting the installation.

2.2. Step 1: Installing the Lock Box

The lock box has a door and lid which need to be removed in order to secure the base in its location. The lock box can be installed horizontally either on the floor or underneath a seat (see Figure 2-2 on page 2–3). Four mounting points are located on the base of the lock box for securing the unit and raising the unit off the mounting surface by 3/16".

Important: If you are mounting the lock box under a seat, contact your Seon Design sales representative or dealer for information on the Underseat Mounting Bracket Kit.

Important: It is not recommended that the lock box be installed on its left or right side where the cables enter the unit.

To install the lock box:

1. Unlock the door with the lock box key and remove it from the lock box.
2. Slide the VCR out of the lock box by pulling on the two bracket tabs at the front of the VCR. See Figure 2-1.

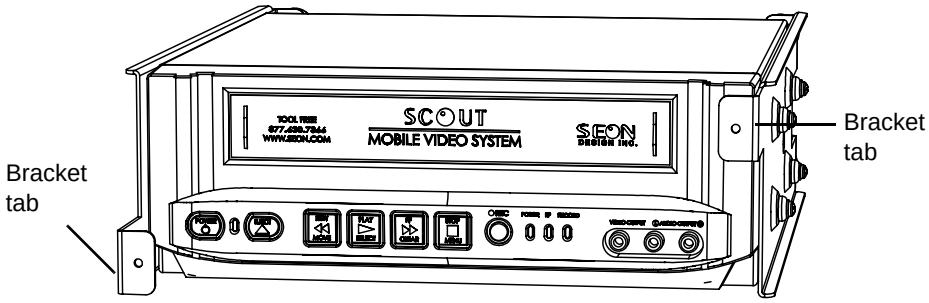

Figure 2-1 Bracket tabs on VCR

3. Detach the lid from the lock box by removing the two retaining screws on either side of the lid near the front of the lock box.
4. Use the four #10 × ¾" sheet metal screws or #10 × 1" self-drilling screws to secure the base of the lock box to the floor.
5. Slide the lid on to the lock box and secure it with the two retaining screws.

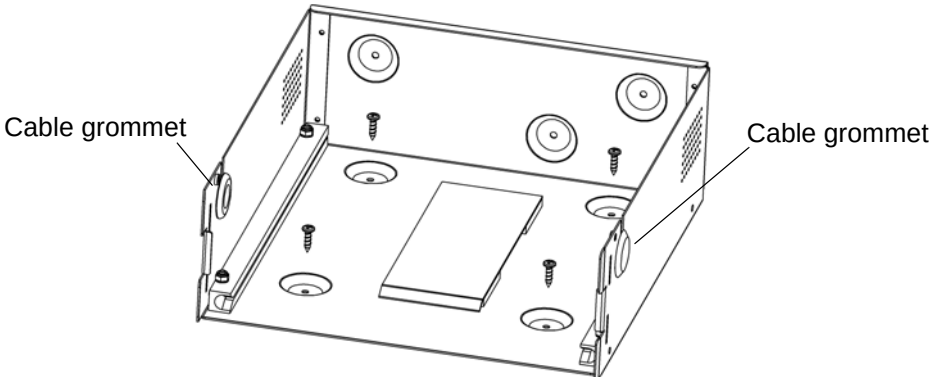

Figure 2-2 Lock box horizontal installation

2.3. Step 2: Installing the VCR in the Lock Box

The VCR has two permanent brackets attached to the sides that allow the VCR to slide easily in and out of the lock box. The brackets also enable easy top-up orientation of the VCR when the unit is installed on the floor or under a seat.

To remove the brackets for service, remove the two screws on each side of the VCR with a Phillips screwdriver.

The rear of each bracket has two plastic retainers that allow cables to easily slip in between to ensure they do not get pinched at the back of the lock box when the VCR slides in. See Figure 2-3.

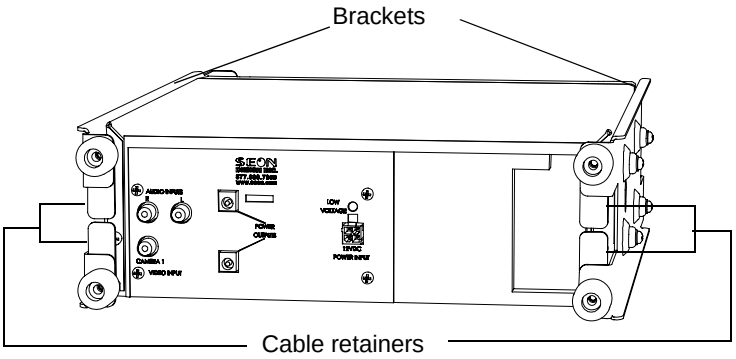

Figure 2-3 Brackets and cable retainers

2.3.1. Connecting to the VCR Back Panel

Figure 2-4 shows the back panel connectors and indicators on the Scout Basic VCR. A description of the connectors is provided in Table 2-1.

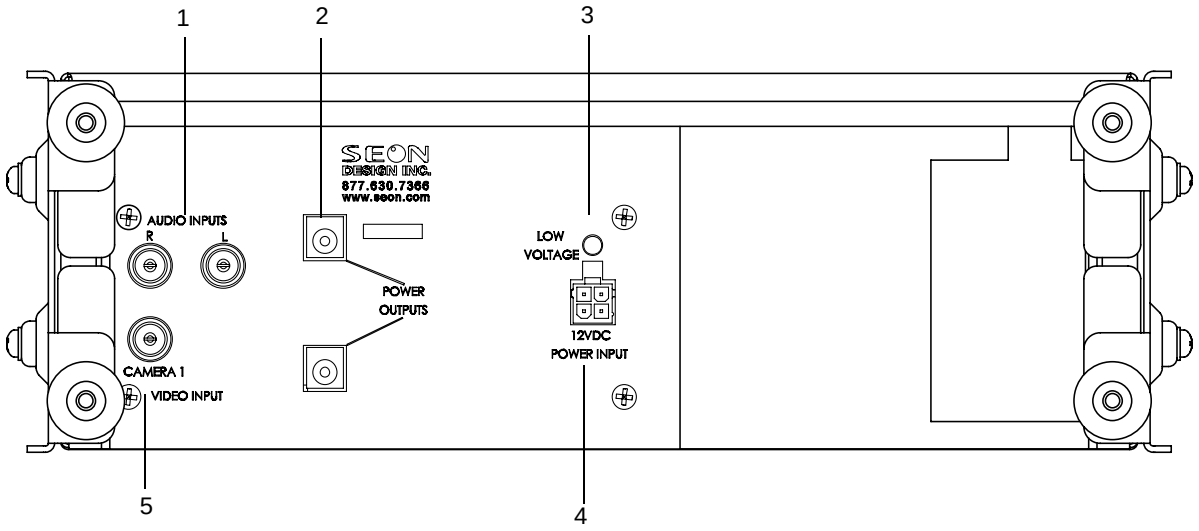

Figure 2-4 Scout Basic VCR back panel

Table 2-1 Back panel features

Item	Feature	Description
1	AUDIO INPUT (R) AUDIO INPUT (L)	Camera 1 (Right) audio connector (red) Remote microphone (Left) audio connector (white)
2	POWER OUTPUTS	Both camera power jacks are identical so any camera or approved accessory can be plugged into either jack.
3	LOW VOLTAGE	Low voltage indicator (red)
4	POWER INPUT	12 VDC Power input connector: 4 pins
5	CAMERA 1 – VIDEO INPUT	Camera 1 Video Connector (yellow)

2.4. Step 3: Installing the Camera

If you have purchased a camera from Seon Design, install the camera according to the documentation that shipped with the product.

2.4.1. Checking the Camera Cable Connections

The Scout Basic System uses the industry standard camera cable with RCA connectors for video and audio and a 2.1 mm barrel connector for power. See Figure 2-5.

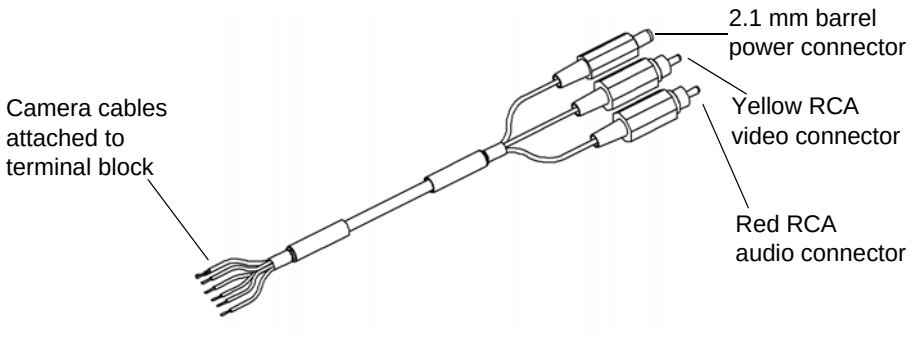

Figure 2-5 Camera cable connectors

The camera cable comes prewired into the camera, but in the event that the cable becomes disconnected, reattach into the terminal blocks inside the camera as shown in Figure 2-6. The cable colors for correct wiring to the terminals are described in Table 2-2. For complete camera information, see the product insert for the camera (for example, *SA Series Wedge Camera Setup Guide* document part number 700-0004*)*.

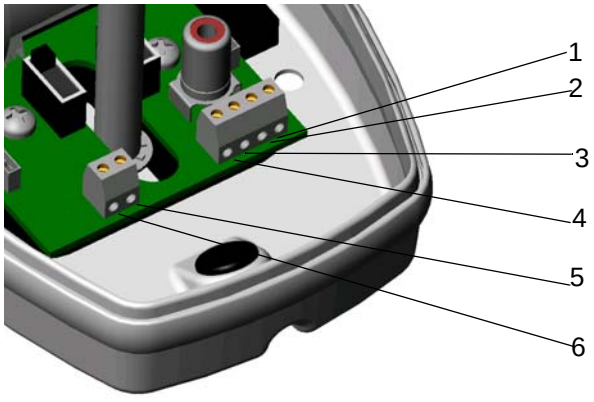

Figure 2-6 Terminal blocks in the camera

Table 2-2 Camera cable wiring

Item	Wire Color	Description
1	Red	Power positive (+)
2	Black (and silver)	Power ground (–)
3	Green	Audio positive (+). Disconnect on the camera if using the remote microphone.
4	White	Audio ground (–). Disconnect on the camera if using the remote microphone.
5	Yellow or orange	Video positive (+)
6	Blue or brown	Video ground (–)

The camera cable is 20 feet and should be long enough to reach from a camera mounted to the header or ceiling of a bus down to the lock box. Different cable lengths can be obtained by contacting Seon Design.

The camera cable can be surface run or concealed.

Surface run Installation

If the installation is surface run, ensure that the camera cable is secured at multiple points and is protected from sharp corners.

Concealed Installation

If the cable is concealed, the cable can be pulled from either end. Pulling from the connector end will require larger holes in panels. Pulling from the wire end will require the cable to be disconnected from the camera.

Feed the cable through the large cable grommet on the lock box. The connectors can be fed through the grommet one at a time, or the grommet can be cut at the top and the cables can be simply slid into the grommet. Leave enough cable in the lock box to allow the VCR to slide all the way back.

2.4.2. Connecting the Camera to the VCR Back Panel

To connect the camera to the VCR:

1. Plug the yellow video RCA connector from the camera into CAMERA 1. See Figure 2-4.
2. Connect the red camera audio connector to the red AUDIO INPUT R.

2.5. Step 4: Connecting the Power and Ignition Harness, Fuses, and Fuse Holders

The power and ignition harness uses a pair of 18 AWG power wires to connect to the vehicle battery and a 22 AWG yellow wire to connect to an ignition-switched circuit. See Figure 2-7.

The supplied in-line automotive fuse holders are for protecting the red positive (+) battery wire and the yellow ignition wire. A 3 A fuse and in-line fuse holder are supplied for the red positive (+) battery power wire. A 1 A fuse and in-line fuse holder are supplied for the yellow ignition trigger wire.

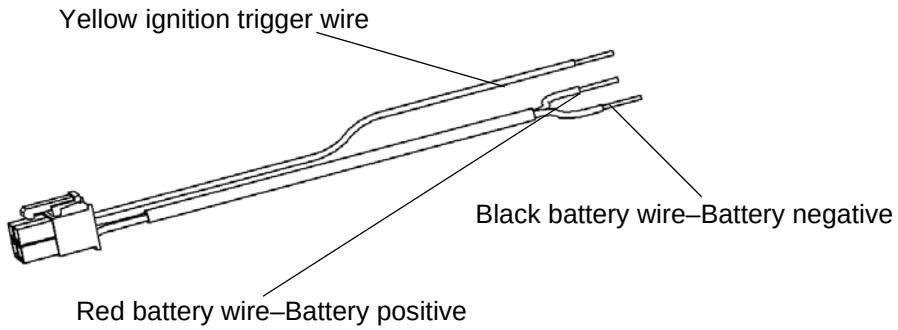

Figure 2-7 Power and ignition harness wires

To connect the power and ignition harness to the battery:

1. Connect the battery power wires as close to the battery as possible.

Important: Connecting the power farther from the battery will result in a larger voltage drop (reduced voltage from the battery to the VCR). If the voltage drop is too large, then the VCR will detect the low voltage and stop recording to protect itself. If the voltage stays low for too long, the VCR will interpret this as meaning the vehicle battery is drained and the VCR will shut down completely.

   The battery acts as a very good filter for transients and surges on the vehicle power lines. Also, the cables from the battery have a voltage drop across them because of the current drawn by the lights, blowers, and A/C units, for example.

2. Connect the black negative (–) battery power wire to the battery's negative (–) terminal. If there is a master battery switch in the battery compartment connected to the battery's negative (–) terminal, connect the black negative (–) battery power wire after the battery switch.
3. The in-line fuse holder consists of a black plastic piece with an attached cap that simply pulls apart. Install the appropriate fuse and push the holder back together.

4. Strip the red wire end appropriately. A butt splice connector is supplied to connect the fuse holder to the red battery power wire. Connect the other end of the fuse holder directly to the battery's positive (+) terminal.
5. Strip the yellow wire end appropriately. A butt splice connector is supplied to connect the fuse holder to the yellow wire. Connect the other end of the fuse holder to an ignition-switched circuit.
6. The connector on the power and ignition harness is plugged into the 12 VDC POWER INPUT connector on the back of the VCR.

CAUTION: Power and ignition harness connection

To ensure proper performance, connect the red and black power wires to points as close to the battery as possible. Never connect the ground wire (black wire) to the vehicle chassis by drilling a hole into a panel and using a sheet metal screw. The ground connection will be corroded very quickly and the performance will be compromised.

Important: The supplied in-line automotive fuse holders are for protecting the red battery positive wire and the yellow ignition trigger wire. Butt-splice connectors are supplied to connect the fuse holders to their respective wires. The battery positive fuse holder uses the 3 A automotive blade fuse, and the ignition trigger fuse holder uses the 1 A automotive blade fuse.

2.6. Step 5: Hardware Installation Final Checklist

Harnesses (Camera, recorder, and accessories)

- Check for proper slack.
- Check that the cables and harnesses are properly secured.
- Check that sharp metal edges are not touching the cables or harnesses.
- Check that all the cables and harnesses are neat and tidy.
- Check that the connections are solid (no shorts).

Camera

- Check for tight mount.
- Check the internal harness connection.
- Check that the lid is properly seated on the gasket and secured tightly.
- Check the camera's field of view.

VCR

- Check for tight mounting of hardware (lock box).
- Confirm that the cable grommet is properly installed.
- Check that all connections are tight.

System

- Install the fuses.
- Plug the video monitor into the VCR.
- Power up the system.
- Confirm that all the camera and audio sources are operating properly.
- Confirm that all the status indicators react properly.
- Switch to temporary power by pressing the front panel POWER button for 3 seconds with the vehicle ignition turned OFF.
- Test the audio/video record.
- Test the audio/video playback.
- Configure the menus per the required end-user specifications.

2.7. EZN Decoy System

The EZN Decoy System uses a live camera that does not have to be changed from bus to bus—only the VCR must be removed. For decoy systems, the lock box and all the harnesses are installed the same as for a live system.

CHAPTER 3

Configuring the VCR

This chapter provides information and procedures for configuring the VCR using the remote control.

3.1. Configuring the VCR

The Scout Basic VCR uses the remote control shown in Figure 3-1 to configure the VCR. Table 3-1 describes the main buttons used for configuring the VCR. For VCR operation, use the VCR front panel buttons for optimum performance.

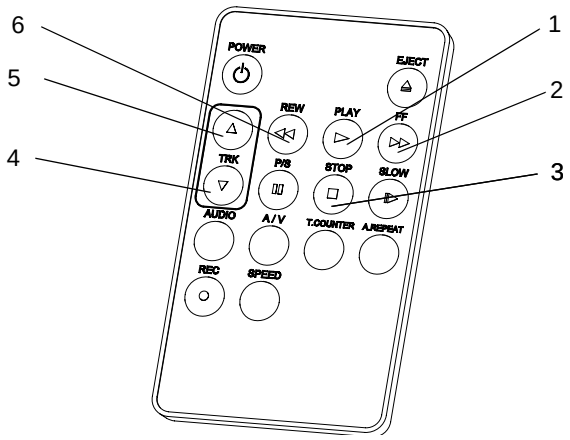

Figure 3-1 Remote control

Table 3-1 Remote control features

Item	Feature	Function
1	PLAY button	Press the PLAY button to select a value or confirm the selection of a menu item.
2	FF button	Press the FF button to advance through the menu items.
3	STOP button	Press the STOP button for 3 seconds to display the Scout main menu.
4	TRK down button	Press the TRK down button to scroll down to a different menu item or decrease a value.
5	TRK up button	Press the TRK up button to scroll up to a different menu item or increase a value.
6	REW button	Press the REW button to move back through the menu items.

3.2. Scout Basic VCR Main Menu

Power up the VCR by pressing the POWER button on the front of the VCR for 3 seconds. This provides temporary power for about 5 minutes.

To view the main menu:

1. Press the STOP button on the remote control for 3 seconds.

   The Scout main menu appears as shown in Figure 3-2.

Figure 3-2 Scout Basic VCR Main menu

2. Press the TRK up or TRK down button to highlight a setting.
3. Press the PLAY button to select the value.

3.2.1. Using the Remote Control

To change a setting on the Scout Plus main menu or sub-menu:

1. Press the TRK up or TRK down button to highlight a setting.
2. Press the PLAY button to select the value, which will be flashing.
   - Press the TRK up or TRK down button to change the value of a menu item.
   - Press the PLAY button to switch between two values such as ON and OFF.
3. Press the FF button or REW button to move between menu items.

   The solid block character ■ represents a blank space in the title.
4. Press the PLAY button to select the value.
5. Choose the Back option at any time to return to the main menu.

3.2.2. Using the Set Time/Date/Title Menu

Use the Set Time/Date/Title menu to set the Time, Date, Daylight Saving time options, the Display Position of on-screen information, and the system Title.

To view the Set Time/Date/Title menu:

1. On the main menu, press the TRK up or TRK down button to highlight Set Time/Date/Title.
2. Press the PLAY button.

   The Set Time/Date/Title menu appears as shown in Figure 3-3.

Figure 3-3 Set Time/Date/Title menu

3. To change a sub-menu setting, “Using the Remote Control” on page 3–3.

Table 3-2 Set Time/Date/Title menu items

Menu Item	Description	Values [Default]
Set Time/Date	Displays the current time, day of the week and date in 12-HR mode only, with the first digit of the time flashing. The day of the week is entered to help set up the daylight saving time.	• 12:00:00a to 11:59:59p a = AM, p = PM MM/DD/YYYY • SU, MO, TU, WE, TH, FR, SA
Daylight Saving	Set to ON automatically adjusts the internal clock to Daylight Saving Time. As of 2007, the time springs forward from 02:00A to 03:00A on the second Sunday in March. On the first Sunday in November, the time falls back to Standard Time by changing from 02:00A to 01:00A. Adjust the times and dates as required. Set to OFF Daylight Saving to disable this feature.	• [ON] • OFF
Start On	Displays the time of year when Daylight Saving Time is set to start.	[MAR 2ND SU] (March, second week, Sunday)
From	Displays the time of day when Daylight Saving Time is set to start.	[02:00a TO 03:00a] (2:00:00 AM to 3:00:00 AM)
End On	Displays the time of year when Daylight Saving Time is set to end.	[NOV 1ST SU] (November, first week, Sunday)

Table 3-2 Set Time/Date/Title menu items

Menu Item	Description	Values [Default]
From	Displays the time of day when Daylight Saving Time will fall back to Standard Time.	[02:00a TO 01:00a] (2:00:00 AM TO 1:00:00 AM)
Display Position	Displays the time and date, title at the top or bottom of the screen.	• TOP • [BOT] (Bottom)
Title	Displays a title for the system of up to 20 characters. The solid block character ■ represents a blank space when displayed later.	• A to Z • : (colon) . (period) / (forward slash) ’ (apostrophe) • 0 to 9
Back	Choose the Back option on the menu to return to the main menu.	

3.2.3. Using the Record Mode/Schedule Menu

Use the Record Mode/Schedule menu to set the Tape Speed, Repeat Record option, Delay-On Time, Delay-Off Time, and Daily Timers.

To view the Record Mode/Schedule menu:

1. On the main menu, press the TRK up or TRK down button to highlight Record Mode/Schedule.
2. Press the PLAY button.

   The Record Mode/Schedule menu appears as shown in Figure 3-4.

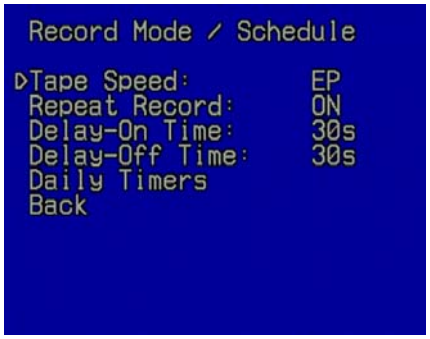

Figure 3-4 Record Mode/Schedule menu

3. To change a sub-menu setting, “Using the Remote Control” on page 3–3.

Table 3-3 Record Mode/Schedule menu items

Menu items	Description	Values [Default]
Tape Speed	Tape Speed can be set to record: • In SP mode (180 minutes (3 hours) with a T-180 tape.) • In EP mode, 540 minutes (9 hours) slightly lower video quality.	• SP (Standard Play) • [EP] (Extended Play) recommended
Repeat Record	The VCR can be set to stop recording or repeat recording when it reaches the end of the video tape. The VCR can rewind and start recording again, overwriting the information on the video tape. Set Repeat Record to ON to enable this feature. To start recording again, press the POWER button to reset Repeat Recording.	• [ON] • OFF
Delay-On Time	Determines when the system starts up. For example, if Delay-On Time is set to 0, the system starts up as soon as the vehicle ignition is turned on. If Delay-On Time is set to 30s, the system will not power up for the first 30 seconds. This feature is very useful when the driver does not pick up the first passenger for some time after beginning the run.	• 0, 15 or [30] seconds • 1, 2, 3, 4, 5, 10, 15, 20, 30, 45, 60 minutes
Delay-Off Time	Enables the VCR to continue recording after the driver has turned the vehicle ignition off.	

Table 3-3 Record Mode/Schedule menu items

Menu items	Description	Values [Default]
Daily Timers	Enables the VCR to record at preset times during the day. This is helpful when a bus may have a long drive before picking up any passengers. The vehicle ignition must be turned on for the timers to work. Daily Timers displays the Start and Stop times in 12-Hour mode. See Figure 3-5. Avoid overlapping timer Start and Stop times. The same Daily Timer schedule is used for each day of the week. The Delay-On settings are overridden by the timers, except for the first 30 seconds. If the system is recording during a Timer interval, then the Delay-Off settings will override the timer once the vehicle ignition is turned off.	• ON • [OFF] • START [12:00a] • STOP [12:00a]
Back	Choose the Back option on the menu to return to the main menu.	

Figure 3-5 Daily Timers menu

3.2.4. Using the Load Factory Defaults Menu

This step resets all of the VCR settings to the factory defaults and clears all of your custom settings. The system will exit the Load Factory Defaults menu and return to the camera view.

To view the Load Factory Defaults menu:

1. On the main menu, press the TRK up or TRK down button to highlight Load Factory Defaults.
2. Press the PLAY button.

   The Load Factory Defaults menu appears as shown in Figure 3-6.

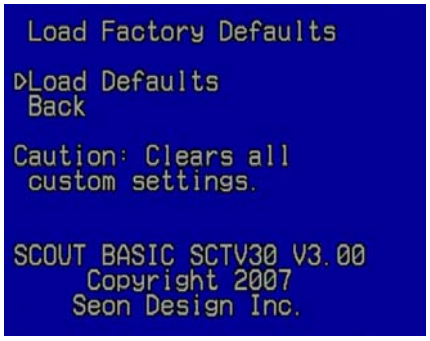

Figure 3-6 Load Factory Defaults menu

3. To change a sub-menu setting, “Using the Remote Control” on page 3–3.

3.2.4.1. Software Version

The software version in the VCR is displayed at the bottom of the Load Factory Defaults menu. When contacting Seon Design about any service or operational issues, please have the software version available for Customer Service.

CHAPTER 4

Operation and Maintenance

This chapter provides information and procedures for operating and maintaining the VCR.

4.1. Operating the VCR

4.1.1. Using the Front Panel

The front panel provides features such as the POWER, EJECT and RECORD buttons, REW, PLAY, FF and STOP buttons, the video output and audio output jacks used for setup, monitoring and playback. See Figure 4-1. A brief description of each feature is provided in Table 4-1.

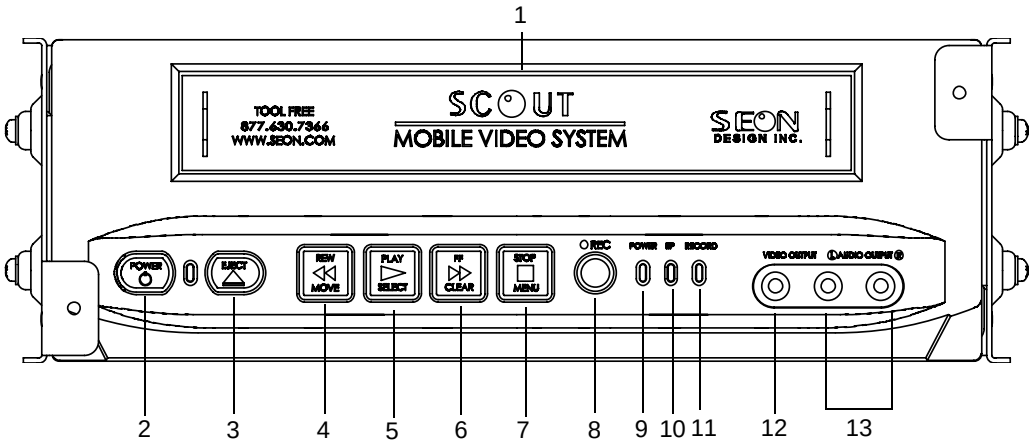

Figure 4-1 Scout Basic VCR front panel

Table 4-1 Scout Basic VCR front panel features

Item	Feature	Description
1	Cassette compartment	Insert the video cassette to begin recording. Press the EJECT button to remove the tape. The VCR must be powered on, either by turning the vehicle ignition ON or pressing the POWER button. (To insert and remove tapes at cold temperatures, see “Smart-Temp™” on page 4–4.)
2	POWER button	With the vehicle ignition turned off, press the POWER button for 3 seconds to provide temporary power to the VCR, approximately 5 minutes. • Press the POWER button for 5 seconds during the DELAY-ON interval to start the VCR recording immediately. • Press the POWER button for 5 seconds during the DELAY-OFF interval to stop the VCR recording and power down.
3	EJECT button	Ejects the video tape after the STOP button is pressed.
4	REW button[1]	Rewinds the video tape in the VCR. Press the REW button while playing a tape will play the video backward.
5	PLAY button	Plays the video tape in the VCR.
6	FF button	Fast forwards the video tape in the VCR. Press the FF button while playing a video tape plays the tape forward.

Table 4-1 Scout Basic VCR front panel features

Item	Feature	Description
7	STOP button	Stops the operation of the VCR.
8	REC button	Press the REC button when a video tape is in the VCR to start recording.
9	POWER indicator (green)	Illuminates when the VCR is powered up.
10	EP indicator (red)	Illuminates when the VCR is playing/recording in EP (extended play) mode.
1l	RECORD indicator (red)	Illuminates when the VCR is recording.
12	VIDEO OUTPUT jack	The front panel VIDEO OUTPUT jack (yellow) is for setup, monitoring, and playback.
13	AUDIO OUTPUT (L) AUDIO OUTPUT (R)	• The left channel AUDIO OUTPUT (white) is for setup, monitoring, and playback. • The right channel AUDIO OUTPUT (red) is for setup, monitoring, and playback.

1.The REW, PLAY, FF and STOP buttons are not dual function buttons.

4.1.2. Recording Video

To start video recording, the VCR must be powered on:

1. Turn the vehicle ignition on.

   The start of video recording may be delayed, depending on the timer and DELAY-ON settings, and if operating the VCR in cold temperatures. (To change settings, see “Using the Record Mode/Schedule Menu” on page 3–6.)

2. To override the DELAY-ON settings and start video recording immediately, press the POWER button for 5 seconds.

   OR

   Without turning the vehicle ignition on, press the POWER button to provide temporary power to the VCR. Press REC to begin recording.

4.1.3. Stopping Video Recording

To stop the VCR recording:

1. Turn the vehicle ignition off.

   The video may not stop recording immediately, depending on the timer and DELAY-OFF settings. (To change settings, see “Using the Record Mode/Schedule Menu” on page 3–6.)

   OR

   Press the STOP button.

2. Stop recording before pressing the EJECT button to remove the tape.

4.1.4. Playing Back Video

If the vehicle ignition is turned on, some of the VCR controls may have delayed functions due to timer settings or DELAY-ON or DELAY-OFF settings.

If the vehicle ignition is turned off, press the POWER button for 3 seconds to provide temporary power to the VCR, approximately 5 minutes.

To playback video:

1. Press the PLAY button to playback the video footage.
2. Press the REW or FF button while playing a tape speeds the playback.

4.2. Other Operating Features

4.2.1. Smart-Temp™

The Scout System incorporates the Smart-Temp feature which monitors the VCR's internal temperature to prevent potential operating problems at cold temperatures, as shown in Table 4-2. Generally, VCRs are designed to operate from about 40°F to about 120°F (4°C to 49°C). However, in areas where the temperature drops below 40°F and quite often below 32°F (0°C), a potential problem is that the video tape can freeze to the video drum or other parts of the VCR mechanism, causing permanent damage to the tape, the mechanism, or both.

Table 4-2 Smart-Temp features

Temperature inside VCR	Smart-Temp…
Below 37°F (3°C)	Powers up the VCR, but the video tape will not be pulled into the mechanism immediately. Powering up the VCR enables the VCR to warm up internally. Once the temperature is above 41°F, the VCR starts recording. The video tape can still be ejected if the temperature is below 37°F, but it is not recommended that a new tape be inserted until after the temperature has risen above 41°F.
Below 5°F (–15°C)	Will not power the VCR at all. To remove a tape from the VCR at this low temperature, the VCR must be removed from the vehicle and taken to a facility where the temperature is above 5°F.

4.2.2. Low Voltage Indicator

Low voltage affects the performance of the Scout Basic VCR and is displayed both on-screen and via the LOW VOLTAGE indicator on the back panel. If the voltage to the VCR is too low, the quality of the video recording will be very poor, and the VCR may be damaged as the internal motors do not receive enough power to operate properly.

If the voltage to the VCR is below 10.5 VDC, the red LOW VOLTAGE indicator illuminates and the VCR will stop recording. When the voltage rises to about 10.9 VDC, the red LOW VOLTAGE indicator will turn off and the VCR operation will return to normal.

4.2.3. Stereo Recording

The Scout Basic VCR incorporates Hi-Fi stereo recording so two different audio sources can be recorded at once. For example, a camera with audio capability can be installed at the front of the bus and a remote microphone can be installed further down the bus. Both audio signals can be recorded at the same time. During playback, a stereo monitor is required to listen to the two different audio channels.

4.3. Maintenance

4.3.1. Cleaning the VCR Recording Heads

Once a month a VCR cleaning tape should be run in the VCR to help extend the life of the recording heads.

4.3.2. Cleaning the Lock Box

The lock box is made from 18 gauge steel, coated with an outdoor powder paint and requires only periodic cleaning. To clean the enclosure, use a damp cloth with a mild detergent. Do not let water into the ventilation holes on the enclosure.

4.3.3. Cleaning the Camera and Window

The camera has a powder-painted stainless steel enclosure. To clean the camera enclosure, use a damp cloth with a mild detergent. While the camera window is made from hard-coated, scratch resistant polycarbonate, it is best to clean the window with a soft, clean cloth to avoid scratches.

4.3.4. Maintaining Video Tape Quality

Depending on the type of video tape used, repeated cycling may cause the tape to degrade and potentially damage the video recording heads in the VCR. Always purchase high quality video tapes and inspect the tape for any signs of wear. If the picture starts to get grainy, or does not track properly in the VCR, try a new tape. For your convenience, high quality video tapes can be obtained directly from your Seon Design sales representative. If a new video tape still shows a grainy or fuzzy picture after using a VCR cleaning tape, then the VCR recording heads may need servicing. Contact your dealer or Seon Design about this type of service.

4.4. Returning Product For Service

If any part of the Scout Basic System is to be returned to Seon Design for service, please contact Seon, provide the model and or serial number of your unit and ask for a Return Authorization (RA) number. An RA number allows the Service Technicians to better track your product when it comes in for service. Please have the RA number clearly marked on the outside of the shipping box. **ANY PRODUCT SENT TO SEON DESIGN WITHOUT AN RA NUMBER MAY BE REFUSED.**

The contact numbers for Seon Design Inc. are:

Toll Free Telephone	1.877.630.7366
Direct Telephone	604.941.0880

Please refer to the SEON DESIGN® INC. PRODUCT WARRANTY provided with your system to review the terms of warranty service, contact and shipping information, as well as other important issues regarding the service and operation of your system.

CHAPTER 5

Troubleshooting

This chapter provides information and procedures on troubleshooting the Scout Basic System.

5.1. Troubleshooting the Scout Basic

The Scout Basic is designed for high reliability of operation. If, however, you have any problems with your system, read this Troubleshooting chapter. If you cannot resolve the issue, contact Customer Service at Seon Design.

Symptom	Possible Cause and Solution
All system problems.	Many system problems are caused by issues with the power supplied to the VCR. Check the following: • The voltage to the system may be too low. Check the LOW VOLTAGE indicator on the back of the VCR. • The power harness from the VCR must be connected as close to the battery as possible. Check the wiring to the battery. See “Step 4: Connecting the Power and Ignition Harness, Fuses, and Fuse Holders” on page 2–8. • Check the in-line fuses and fuse holders. If a fuse is blown, determine the cause before replacing it. See page 2–9.
The VCR power indicator does not power on.	• The voltage to the system may be too low. Check the LOW VOLTAGE indicator on the back of the VCR. See Figure 2-4 on page 2–5 for location of the LOW VOLTAGE indicator. • The power harness from the VCR must be connected as close to the battery as possible. Check the wiring to the battery. See “Step 4: Connecting the Power and Ignition Harness, Fuses, and Fuse Holders” on page 2–8. • Check the in-line fuses and fuse holders. If a fuse is blown, determine the cause before replacing it. See page 2–9. • Is the temperature below 5°F (–15°C)? Check the flashing LOW TEMPERATURE indicator on the back panel of the VCR. The VCR temperature must be above 5°F to operate. • Is the power and ignition harness plugged into the VCR securely?
The VCR powers on and the green power indicator is illuminated on the front panel, but the unit does not start recording.	• Check the ignition wiring from the power input harness. Is the yellow wire connected to an ignition switched circuit? • Is the video tape inserted in the cassette compartment? • Check the battery voltage. • Is the temperature below 37°F (3°C)? Wait for the VCR to warm up and start recording. • Check the settings for Delay-On Time in the Record/Schedule menu. See “Using the Record Mode/Schedule Menu” on page 3–6. • Are the Timers on? See “Using the Record Mode/Schedule Menu” on page 3–6. • Check the setting for Repeat Record. If the Repeat Record is set to OFF, press the POWER button to reset the repeat record mode.
The VCR power indicator is illuminated, but there is no picture on the video monitor output.	• Check the connections inside the camera and to the VCR lock box. • Is the LOW VOLTAGE indicator on the back panel illuminated? • Check for harness damage. • Is the temperature below 37°F? Wait for the VCR to warm up.

Symptom	Possible Cause and Solution
The live camera picture is snowy, fuzzy, or grainy.	• Check all the connections inside the camera. • Is the camera cable damaged? • Check the connections inside the VCR lock box. • Is the power harness connected directly to the bus battery.
The playback picture is snowy, fuzzy, or grainy.	• Clean the VCR heads with a video tape cleaner cassette. • Is the power input harness connected to the battery? • Check the video monitor cable attached to the front or back of the VCR.
Very low or no audio on playback with camera microphone.	• Is the sensitivity adjustment on the audio module in the camera turned down too low? See the product documentation for the camera to adjust the setting. • Is the camera cable wired correctly to the terminal blocks inside the camera? • Is the camera audio connector damaged or not plugged into the VCR securely? • Is the playback VCR a mono (single channel) audio only device? If so, try plugging the Camera Audio Connector into the white (L) audio input on the back of the VCR.
Extra text overlay appears on the screen as two dashed lines enclosed in quotation marks.	• Press the T.COUNTER on the remote control to show or clear the extra text overlay (see “Configuring the VCR” on page 3–2.)

Appendix A

Specifications

This appendix provides the product specifications for the Scout Basic Mobile VCR System.

Note: Specifications are subject to change without notice.

A.1. Scout Basic VCR

Video Heads	2 Head Helical Scanning
Video Tracking	Automatic
Video Output	75 Ohm NTSC video
Video Resolution	220 TVL
Video Connectors	RCA Phono
Audio Heads	2 Head Hi-Fi
Audio Input Level	–8 dBm
Audio Output Level	–6 dBm, 10 kΩ
Audio Connectors	RCA Phono
Rewind Time	Approximately 5 Minutes (T-120 tape)
Operating Temperature	41°F to 104°F (5°C to 40°C)
Operating Humidity	0% to 80% relative humidity, non-condensing
Operating Voltage	11 to 15.5 VDC
Transient Protection	400 W
Temperature Protection	Smart-Temp Low Temperature and Extreme Low Temperature
Power Harness Connector	Molex® Mini-Fit Jr.™ High Cycle, Gold Plated
Power Circuit Fuse	3 A
Ignition Circuit Fuse	1 A

Dimensions (H × W × D)	3.5 × 9.75 × 10.75" (89 × 248 × 273 mm)
with VCR brackets	3.5 × 10.75 × 12.63" (89 × 273 × 321 mm)
Weight	6.6 lb (3 kg)
with VCR brackets	8 lb (3.6 kg)

A.2. VCR Configurable Features

Time Format	12-Hour mode
Date Format	MM/DD/YYYY
Daylight Saving Time	ON (Automatic) and OFF
Camera Titles	20 characters
VCR Voltage Display	ON/OFF
Repeat Record	User selectable ON/OFF
Delay-On	OFF, 15 seconds to 1 Hour with Smart-Start
Delay-Off	OFF, 15 seconds to 1 Hour
Daily Timers	5

A.3. Lock Box

Main Enclosure	18 GA cold rolled steel (CRS)
Enclosure Brackets	18 GA CRS
Coating	Outdoor polyester powder paint, black
Tray Slide Rails	Industrial UHMW-PE
Door Lock	Industrial cam lock, keyed alike. Different keying available.
Dimensions (H × W ×D)	4.5 × 12 × 15" (114 × 305 × 380 mm)
Weight	8 lb (3.6 kg)

SEON DESIGN® INC. PRODUCT WARRANTY

Seon Design Inc. (Seon) warrants the cameras and components listed below against defects in workmanship and materials provided that such defects appear or are discovered within the respective periods specified below and provided further that the purchaser of such products notifies Seon of such defects within thirty (30) days of the appearance or discovery of such defects:

- Five (5) years from date of purchase parts and labor on the SA Wedge Camera Series
- One (1) year from date of purchase parts and labor on the SA-IR Illuminator
- One (1) year from date of purchase parts and labor on the Scout™ Mobile VCR Systems
- One (1) year from date of purchase parts and labor on all other products and accessories

All service/replacement parts and repairs are warranted for a period of 90 days.

Subject to the terms and conditions listed below, during the relevant warranty period, Seon will repair, replace, or refund the purchase price for the defective product, whichever Seon considers to be appropriate in the circumstances, in Seon's sole and arbitrary opinion, free of charge, any defective products returned prepaid. In the event purchaser has a problem with any Seon product, please call and request a **RETURN AUTHORIZATION (RA) NUMBER** from the Service Department.

Please call 877-630-7366 or (604) 941-0880 and ask for the Service Department. Be sure to have the model number, serial number and the nature of the problem available for the customer service representative. Prior authorization **MUST** be obtained for all returns, exchanges, or credits. **ITEMS SHIPPED TO SEON WITHOUT A CLEARLY IDENTIFIED RA NUMBER MAY BE REFUSED.**

Products returned will be tested to verify the defect. Upon verification of the defect, the product will be repaired or exchanged, or the purchase price will be refunded or credited to the customer's account, at the sole option of Seon. In the event of replacement, the returned product will be credited to the customer's account and a new invoice issued for the replacement item. Seon reserves the right to refund the purchase price or to issue a credit only in lieu of replacement.

Seon may use new or refurbished replacement parts for repairing its products, at its sole and arbitrary discretion. Seon may replace an entire unit with an equivalent model, at its sole and arbitrary discretion. If a unit is exchanged, the returned product shall become the property of Seon and the exchange product becomes the property of the purchaser, and the remainder of the warranty that applied to the original unit purchased shall apply to the exchanged product. Exchange units may be new units or units that have been repaired to full factory specifications at Seon's discretion.

If the product is found to be in good working order or its inability to function properly is not covered by this warranty, the product will be returned in the same condition as received unless repair is possible and requested by the customer. Repairs of such nature will incur a charge for parts and labor and will proceed only by agreement with the customer to accept the charge.

This warranty shall not apply:

(a) to equipment not supplied by Seon;

(b) to equipment, including, any components, which shall have been operated in excess of rated capacity, subject to negligence, accident, or damage by circumstances beyond Seon's control, or to improper installation, operation, maintenance, servicing, alterations or storage, modification without Seon's written authorization, misuse, vandalism, fire, floods or acts of nature so as, in Seon's exclusive and arbitrary judgment, to affect the same adversely; or

(c) if the serial number for the product has been altered in any way.

(d) if the product has been operated outside of the specified Operating Environment specified in the Seon Users Manual for such product.

DISCLAIMER

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER REPRESENTATIONS, WARRANTIES, GUARANTEES AND CONDITIONS, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE AND WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, SEON EXPRESSLY DISCLAIMS AND EXCLUDES ANY IMPLIED WARRANTY OF MERCHANTABILITY, DURABILITY OR FITNESS FOR PURPOSE AND ANY WARRANTIES OR MODIFIED WARRANTIES ARISING FROM USAGE OF TRADE OR COURSE OF DEALING.

Any description of the goods or services, whether in writing or made orally by Seon or Seon's agents, specifications, samples, models, bulletins, drawings, diagrams, engineering sheets or similar materials used in connection with customer's order are for the sole purpose of identifying the goods and/or services and shall not be construed as an express warranty. Any suggestions by Seon or Seon's agents regarding use, applications or suitability of the goods and/or services shall not be construed as an express warranty unless confirmed to be such in writing by Seon. Purchaser assumes full responsibility for selecting products to achieve purchaser's intended purposes, for properly installing and using those products, and for verifying the results obtained therefrom.

PURCHASER'S EXCLUSIVE REMEDY AND SEON'S ENTIRE LIABILITY ARISING FROM OR IN CONNECTION WITH PURCHASER'S USE OF THE PRODUCTS AND/OR THIS AGREEMENT SHALL BE REPAIR OR REPLACEMENT OF DEFECTIVE PRODUCTS, OR REFUND OR CREDIT OF THE PURCHASE PRICE OF THE PRODUCTS AS SET FORTH ABOVE. SEON SHALL NOT BE SUBJECT TO AND DISCLAIMS: (A) ANY OTHER OBLIGATIONS OR LIABILITIES ARISING OUT OF BREACH OF CONTRACT OR OF WARRANTY, (B) ANY OBLIGATIONS WHATSOEVER ARISING FROM TORT CLAIMS (INCLUDING NEGLIGENCE, AND STRICT LIABILITY) OR ARISING UNDER OTHER THEORIES OF LAW WITH RESPECT TO GOODS SOLD OR SERVICES RENDERED BY SEON, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATING THERETO, AND (C) ALL CONSEQUENTIAL, INCIDENTAL, SPECIAL AND CONTINGENT DAMAGES WHATSOEVER, EVEN IF SEON HAS BEEN SPECIFICALLY ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Without limiting the generality of the foregoing, Seon specifically disclaims any liability for property or personal injury damages, penalties, special or punitive damages, damages for lost profits or revenues, loss of use of goods or any associated equipment, cost of capital, cost of substitute goods, facilities or services, down-time, shut-down or slow-down costs, or for any other types of economic loss, and for claims of customer's customers or any third party for any such damages. Some jurisdictions do not allow limitation or exclusion of incidental or consequential damages, so this limitation or exclusion may not apply to purchaser. In no event shall Seon's total liability for any damages to purchaser or any other person in connection with the products or this agreement exceed the lower of the suggested list price or the actual price paid for the products, regardless of whether such liability arises from contract, tort, warranty or any other form of claim.

If any provision of this agreement is found to be void, invalid, or unenforceable, that finding shall not affect the remaining provisions, all of which shall be enforced to the full extent permitted by law. If any remedy hereunder is determined to have failed of its essential purpose, the limitations of liability and exclusion of damages set forth above shall remain in full force and effect. This agreement may be modified only in writing signed by a duly authorized representative of Seon.

Provisions Applicable to American Customers

For those customers whose mailing address is in the United States, Seon's offer and any agreement of sale resulting therefrom shall be governed by and construed in accordance with the internal and domestic laws of the State of WASHINGTON without giving effect to the conflict of laws rules thereof. The Superior Court of Washington for Whatcom County and U.S. District Court for the Western District of Washington ("the U.S. Closed Courts") shall have exclusive jurisdiction to entertain and determine all disputes and claims, whether for specific performance, injunction, declaration or otherwise arising out of or in any way connected with the construction, breach, or alleged, threatened or anticipated breach of the contract resulting from this offer and shall have jurisdiction to hear and determine all questions as to the validity, existence or enforceability thereof. Customer specifically consents to such Court's exercise of jurisdiction over it. The purchaser attorns to the exclusive jurisdictions of the jurisdiction of the U.S. Closed Courts, waives any obligation to venue in any action or proceeding regarding Seon Products and waives any objection that the U.S. Closed Courts are an inconvenient forum or do not have jurisdiction over the purchaser of Seon. The United Nations Convention On Contracts For The International Sale Of Goods shall not apply.

Provisions Applicable to Canadian Customers

For those customers whose mailing address is in Canada, Seon's offer and any agreement of sale resulting therefrom shall be governed by and construed in accordance with the internal and domestic laws of the Province of BRITISH COLUMBIA and the laws of Canada applicable therein without giving effect to the conflict of laws rules thereof. The courts of British Columbia (the "Canadian Closed Courts") shall have exclusive jurisdiction to entertain and determine all disputes and claims, whether for specific performance, injunction, declaration or otherwise arising out of or in any way connected with the construction, breach, or alleged, threatened or anticipated breach of the contract resulting from this offer and shall have jurisdiction to hear and determine all questions as to the validity, existence or enforceability thereof. The purchaser attorns to the exclusive jurisdictions of the jurisdiction of the Canadian Closed Courts, waives any obligation to venue in any action or proceeding regarding Seon Products and waives any objection that the Canadian Closed Courts are an inconvenient forum or do not have jurisdiction over the purchaser of Seon. The United Nations Convention On Contracts For The International Sale Of Goods shall not apply.

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